Article Title: Effectiveness of Resistance Training and Associated Program Characteristics in Patients at Risk for Type 2 Diabetes: a Systematic Review and

Meta-Analysis.

Journal name: Sports Medicine

Authors: Raza Qadir¹(corresponding author), Nicholas F. Sculthorpe², PhD, Taylor Todd³, Elise C. Brown³, PhD

1. Oakland University William Beaumont School of Medicine

586 Pioneer Dr,

Rochester, MI 48309, USA

Email: razaqadir@oakland.edu

2. University of the West of Scotland

Lanarkshire, United Kingdom

3. School of Health Sciences

Oakland University

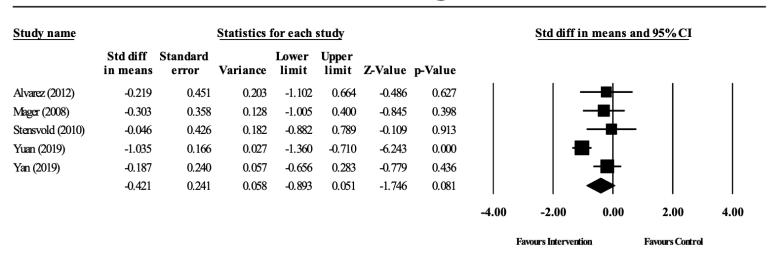
Rochester, MI 48309, USA

Electronic Supplementary File 3 Forest plots for outcome variables. Black filled squares represent the mean and 95% confidence interval for individual studies. Filled diamond represents mean and 95% confidence interval for all pooled results

Percentage Body Fat Changes

Study name			Statistics	for each st	udy				Std dif	f in means and	195% CI	
	Std diff in means	Standard error	Variance	Lower linit	Upper limit	Z-Value	p-Value					
Alvarez(2012)	-0.192	0.450	0.203	-1.075	0.691	-0.426	0.670		-	-		
DeVallance (2016)	-1.500	0.414	0.171	-2.312	-0.688	-3.623	0.000		-	-		
Korkmaz (2018); Venoj arvi (2013)	-1.197	0.249	0.062	-1.686	-0.708	-4.799	0.000			-		
Levinger (2007)	-0.340	0.368	0.135	-1.061	0.380	-0.925	0.355		-			
	-0.840	0.301	0.090	-1.429	-0.251	-2.797	0.005					
								-4.00	-2.00	0.00	2.00	4.00
									avours Interventi		Favours Control	

BMI Changes



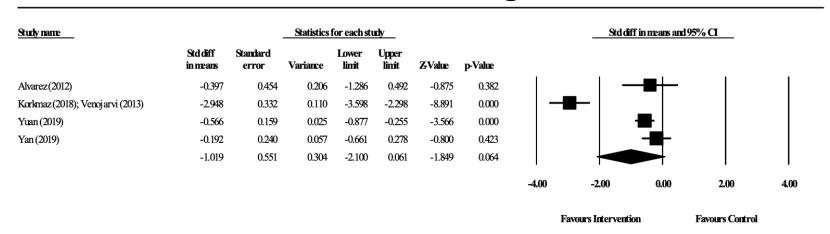
HbA1c Changes

Study name			Statistics	for each st	udy				Std d	iff in means and	95% CI	
	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value					
Dai (2019)	-1.659	0.286	0.082	-2.219	-1.099	-5.805	0.000		+=-			
Flandez(2017)	-0.883	0.331	0.110	-1.532	-0.233	-2.665	0.008		-			
Korkmaz (2018); Venoj arvi (2013)	-1.000	0.244	0.059	-1.478	-0.522	-4.105	0.000		-			
Stensvold (2010)	-0.187	0.427	0.183	-1.024	0.651	-0.436	0.663			-		
Yuan (2019)	-2.315	0.201	0.040	-2.709	-1.920	-11.505	0.000		-			
Yan (2019)	-0.207	0.240	0.057	-0.677	0.263	-0.863	0.388					
	-1.064	0.376	0.141	-1.802	-0.327	-2.830	0.005					
								-4.00	-2.00	0.00	2.0	0
								Fav	ours Intervent	ion	Favours 0	Contr

HDL Changes

Study name			Statistics	for each	study				Std diff in	n means a	<u>nd 95% C</u> I	
	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z -Value	p-Value					
Dai (2019)	-0.707	0.254	0.065	-1.205	-0.209	-2.781	0.005		-	█-		
DeVallance (2016)	-1.000	0.388	0.151	-1.761	-0.239	-2.577	0.010		-■	-		
Stensvold (2010)	-0.085	0.427	0.182	-0.921	0.751	-0.200	0.842					
Levinger (2008)	-0.750	0.384	0.148	-1.503	0.003	-1.951	0.051		-			
Yuan (2019)	-1.457	0.175	0.031	-1.800	-1.114	-8.319	0.000					
Yan (2019)	-0.030	0.239	0.057	-0.499	0.438	-0.127	0.899			-		
	-0.693	0.274	0.075	-1.230	-0.156	-2.530	0.011		◀			
								-4.00	-2.00	0.00	2.00	4.00
								Te.	avours Interventi	on	Favours Control	

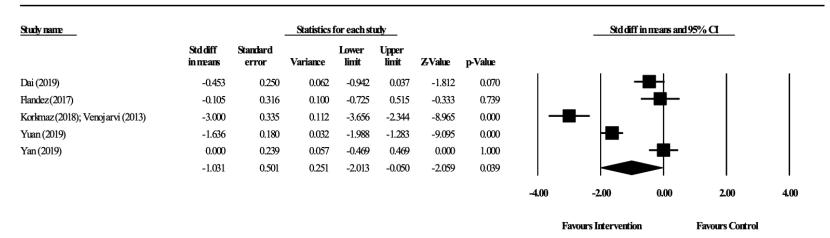
HOMA IR Changes



Plasma Insulin Changes

Study name			Statistics	for each st	<u>udy</u>				Std di	ff in means and 9):
	Std diff in means	Standard error	Variance	Lower linit	Upper limit	Z-Value	p-Value				
varez(2012)	-0.205	0.450	0.203	-1.088	0.678	-0.455	0.649		-	—	
orkmaz (2018); Venoj arvi (2013)	-3.584	0.371	0.137	-4.310	-2.858	-9.673	0.000	₩			
lager (2008)	-0.440	0.361	0.130	-1.146	0.267	-1.219	0.223		-		
rcus (2009)	-0.244	0.518	0.269	-1.259	0.772	-0.470	0.638		-		
(2019)	-0.339	0.157	0.025	-0.647	-0.032	-2.163	0.031				
(2019)	-0.451	0.242	0.059	-0.925	0.024	-1.861	0.063			-■-	
	-0.879	0.463	0.215	-1.786	0.029	-1.897	0.058				
								-4.00	-2.00	0.00	
								Fav	ours Interventi	on	

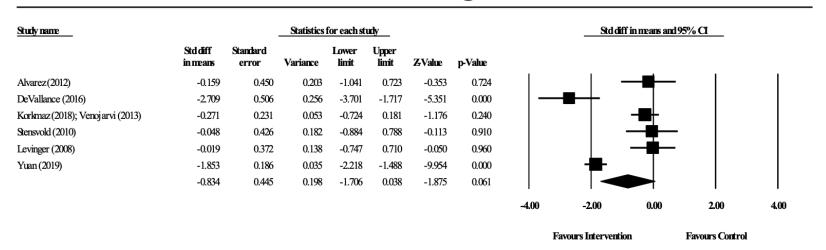
LDL Changes



SBP Changes

tudy name			Statistics	for each st	udy				Std di	ff in means and 9	5% CI	
	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value					
alvarez (2012)	-0.400	0.454	0.206	-1.289	0.489	-0.883	0.377		-	■ +-		
NeVallance (2016)	-1.333	0.404	0.164	-2.126	-0.541	-3.297	0.001		+-	-		
Corkmaz (2018); Venojarvi (2013)	-0.060	0.230	0.053	-0.510	0.391	-0.260	0.795			-		
tensvold (2010)	-0.106	0.427	0.182	-0.942	0.731	-0.248	0.804			-		
evinger (2008)	-0.328	0.374	0.140	-1.062	0.405	-0.878	0.380					
Tuan (2019)	-3.139	0.233	0.054	-3.595	-2.683	-13.495	0.000	-	-			
	-0.907	0.625	0.390	-2.131	0.317	-1.452	0.146					
								-4.00	-2.00	0.00	2.00	4.0

DBP Changes



Total Cholesterol Changes

	Std diff in means -1.225 -0.302 -3.000	Standard error 0.269 0.318 0.335	Variance 0.072 0.101 0.112	Lower limit -1.752 -0.926	Upper limit -0.698 0.321	Z-Value -4.559 -0.951	p-Value 0.000 0.342		-		1	1
Flandez (2017) Korkmaz (2018); Venoj arvi (2013)	-0.302	0.318	0.101	-0.926	0.321	-0.951			-			
Korkmaz (2018); Venoj arvi (2013)							0.342					
` ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	-3.000	0.335	0.112	2						— 1	I	
Stensvold (2010)			0.112	-3.656	-2.344	-8.965	0.000	│ │ ■	_			
	-0.183	0.427	0.183	-1.020	0.655	-0.427	0.669			━		
Yuan (2019)	-0.727	0.161	0.026	-1.042	-0.412	-4.521	0.000			█		
Yan (2019)	-0.171	0.239	0.057	-0.641	0.298	-0.716	0.474			-		
	-0.933	0.371	0.138	-1.660	-0.206	-2.515	0.012					
								-4.00	-2.00	0.00	2.00	4.00

Triglyceride Changes

Study name	Stat	istics for	each stu	<u>ıdy</u>	<u>. 1</u>	Std diff in	means a	and 95% C	<u>[</u>
	Std diff in means	Lower limit	Upper limit	p-Value					
Dai (2019)	-0.406	-0.894	0.083	0.103			-		
DeVallance (2016)	-1.500	-2.312	-0.688	0.000		+=	-		
Huffman (2014)	-0.371	-0.996	0.254	0.244					
Korkmaz (2018); Venojarvi (2013)	-2.000	-2.551	-1.449	0.000		-			
Stensvold (2010)	-0.181	-1.019	0.656	0.672			—■		
Levinger (2008)	-0.233	-0.964	0.498	0.532			-		
Yuan (2019)	-0.628	-0.940	-0.315	0.000					
Yan (2019)	-0.333	-0.805	0.139	0.167			-		
	-0.705	-1.132	-0.279	0.001			lack		
					-4.00	-2.00	0.00	2.00	4.0
					F	avours Interventi	on	Favours Control	

Waist Circumference Changes

Study name			Statistics	for each st	udy				Std di	ff in means and	195% CI	
	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z -Value	p-Value					
Alvarez(2012)	-0.166	0.450	0.203	-1.048	0.716	-0.369	0.712			-	.	
Korkmaz (2018); Venojarvi (2013)	-1.281	0.252	0.064	-1.775	-0.787	-5.081	0.000		-	-		
Levinger (2007)	-0.142	0.366	0.134	-0.858	0.575	-0.388	0.698			-		
Vager (2008)	-0.476	0.361	0.131	-1.184	0.232	-1.318	0.188		-	╼═┼		
Rensvold (2010)	-0.030	0.426	0.182	-0.866	0.806	-0.070	0.944			-	-	
Levinger (2008)	-0.121	0.372	0.138	-0.850	0.608	-0.325	0.745			-		
	-0.422	0.241	0.058	-0.894	0.050	-1.750	0.080					
								-4.00	-2.00	0.00	2.00	

Declarations

Ethics approval and consent to participate Not applicable

Consent for publication Not applicable

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Competing interests Raza Qadir, Nicholas F. Sculthorpe, Taylor Todd, and Elise C. Brown declare that they have no competing interests.

Availability of data and material Data supporting the findings of this study are available from the corresponding author on request.

Author Contributions ECB and RQ designed the research and conducted the searches and screening. RQ and TT extracted the data, which were verified by ECB. NFS performed the statistical analyses. RQ wrote the manuscript with critical input from ECB and NFS.

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